



**CITY OF
TUCSON**
INFORMATION
TECHNOLOGY
DEPARTMENT

INFORMATION TECHNOLOGY POLICY & PROCEDURES

TITLE: TECHNOLOGY STANDARDS

DATE INITIATED: October 1, 2009

DATE APPROVED: May 15, 2011

DATE REVISED: To be revised as standards are updated

TO BE REVIEWED: Yearly

**RESPONSIBLE
PERSON:** CIO

SCOPE: Applies to all information technology acquisitions for the City of Tucson.

POLICY: The City will require all technology acquisitions to comply with City Technology Standards. Exceptions will be granted by the IT Director based on a compelling business case.

PROCEDURE: The purpose of technology standards for the City of Tucson is to avoid technological obsolescence, reduce risk, increase leverage of personnel and skill sets, control costs, and facilitate the selection process for new acquisitions as evaluated on a fully loaded five-year cost of ownership basis. The Department of Information Technology selects, publishes, and regularly updates these standards, and requires all new acquisitions to comply.

Exceptions to the standards may be granted to departments for a compelling business reason, though there may be additional costs or other requirements that result from such exceptions.



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**DEVELOPMENT
LANGUAGES**

Programming languages supported in the City consist of VB and C#.NET (versions 2.0, 3.0 and 3.5), Java Standard Library 1.4, and J2EE version 1.4. The supported web and application server environments consist of IIS version 5 and above and WebSphere 6.1. All new application development is occurring in C#.Net version 3.5. Web applications requiring Internet access will use a proxy and not be outside the firewall.

In the City's web environment, PHP 5 and Perl 5.8. are supported languages and Apache 2.2.3 is the supported web server.

Web pages and web front ends to applications must be both ADA and Limited English Proficiency (LEP) compliant; primary LEP languages are Spanish and Korean. The City uses Drupal content management software.

DATABASES

City of Tucson applications run on three supported databases including Oracle 10G or higher (Windows 2008, AIX 5.3), SQL server 2005 or higher (Windows server 2008), and MySQL version 5.0.26 or higher. The City may express a preference between the databases offered for a specific application. Databases should be able to coexist with other databases in a shared server environment.

**DESKTOP
SOFTWARE**

Operating System: Windows XP (service pack 3.0) is the standard for deployed desktop operating systems. Windows 7 Pro 32-bit is the standard for new purchases.

E-mail/Calendaring: GroupWise 7.0.3 is used for e-mail and calendaring functions

Internet Browser: Internet Explorer 6.0.29 is the standard Internet browser.

Office Suite Productivity Tools: Microsoft Office Suite 2003 is the standard with Word for word processing, Excel for spreadsheets, and PowerPoint for presentations. The City uses Office's 2007 compatibility pack.

FTP Software: Filezilla is the open-source standard for transferring files.

Portable encrypted storage device: Kingston DataTraveler 5000 series.

Project Management: Microsoft Project 2000 is the project accounting standard for functions such as providing Gantt charts, resource allocation, and timelines.

**SERVER
OPERATING
SYSTEMS**

Microsoft Windows Servers: Windows 2008 R2 is the standard for Microsoft Windows environments.

Unix based Servers: IBM AIX version 5.3.x is the standard operating system for Unix based servers.

Linux Servers: RedHat EL5 kernel 2.6

Virtual Servers: VMWare VSphere 4.1. Production applications should be capable of running in a VMWare environment.



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**NETWORK
COMMUNICATION**

The City of Tucson supports a centralized fiber network for voice and data. The City maintains a single point of presence to the Internet and for providing Internet access to all City departments. This includes the provision of full Internet security services, including a firewall, virus protection systems, intrusion detection systems, and a “DMZ” for making City information available in a secure manner. Departments are not permitted to contract for their own ISP services for Internet access.

The Class B IP address license “166.89.0.0” is the property of the City of Tucson. The Network Services division will manage the addresses (numbers) and their use. Network Services will also manage the external DNS and DHCP services. TCP/IP has been adopted as the sole communications protocol for all network traffic.

The Information Technology Department shall make available remote access services so that City employees have access to their City e-mail from outside the City network. The Information Technology Department commits to maintaining wide area network availability and Internet access to the maximum extent possible. IT shall communicate scheduled network outages or disruption of Internet access to affected parties in advance.

Network Services will oversee the design of new communications facilities, fiber infrastructure, communications rooms, and wireless links to ensure that they adhere to City of Tucson network standards as documented in the Tucson Regional Communications and Networking Standards.

Connectivity of sites utilizing leased services (e.g. T1 lines) from service providers may be administered by departments with coordination through IT.

PRINTERS

Centralized printers are located in each workgroup area of the City. As the City converts to new copiers, the printer and scanner functions of the copiers will be used to replace devices that are printer only. Desktop printers are reserved for use where security or specialized functionality is required.



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**SECURITY
PROTOCOLS**

Web Security Protocol: HTTPS using 128-bit encryption is the standard for secure web applications.

Terminal Sessions: Secure Shell (SSH) is the standard for communicating with Unix based machines.

Remote Access: Cisco VPN client (contact IT for a copy)

Security patches: Security updates are pushed to all personal computers and servers unless the individual machine is blocked by the system administrators.

Password Security: To protect networked functionality, all hardware and application passwords will be administered centrally by the network security staff. Passwords must be a minimum of 8 characters long and require a combination of letters and numbers

Remote Access: Remote access services to servers, systems, and desktop computers may also be provided to employees or outside parties through VPN or other technologies consistent with documented procedures and agreements.

Screensavers: All users must use screensavers with passwords; the maximum time for the screensaver to activate is five (5) minutes.

Security Administrative Directive: Additional details for IT security are contained in the City's Administrative Directive 1.08.3, found on the City's website.

Virus and malware protection: The City uses a third-party application that is centrally managed for all servers and personal computers. Devices that do not support centrally managed protection may be removed from the network.

**OPEN SOURCE
SOFTWARE
PREFERENCE**

Open Source Software will be evaluated for all future technical and business uses. Open Source software that passes evaluation criteria will be implemented (documented in the IT Policy for Open Source Software). Only where Open Source Software is reviewed and found to be unsuitable for the intended business purpose will commercial, proprietary solutions be evaluated.

**HARDWARE
CONFIGURATION**

All personal computers, mobile computers, printers, and other electronic devices will be configured to a default standard maintained by the IT department. Additional software that is desired or required, or a variant configuration that is needed for an application, must be approved by the Customer Services team. All personal computers are installed in a locked down configuration.

IT will define and publish PC hardware and software configurations for all IT purchases. Exceptions must be approved by IT. Non-standard or unapproved purchases will not be supported by IT.



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VIRTUALIZATION

All new business applications and shared tools must be able to run in a VMware environment. The City retains the option of running both testing and production servers in either VMware or as stand-alone installations.

GIS

The City of Tucson's enterprise GIS program is based on the ESRI suite of applications. All licenses are under maintenance and new versions of ESRI software are installed as soon as it is determined that there are no compatibility issues with existing applications.

Enterprise GIS data is stored in the geodatabase format in a Microsoft SQL Server database. Data is accessed from desktops using all levels of the ArcGIS software. Internet mapping applications are deployed using the ArcGIS API for Adobe Flex and ActionScript.

When considering a new application that must access GIS data, emphasis should be placed on applications that can access the geodatabase format directly and/or consume ArcServer map services.

**FIVE-YEAR COST
OF OWNERSHIP**

IT will assess ownership costs for all acquisitions over a five-year period, including the following costs (as applicable):

1. Original software and/or hardware acquisition costs
2. Implementation services, including project management
3. Hardware and/or software maintenance contracts, including one replacement for hardware
4. Upgrades that are not covered under maintenance
5. Third-party costs
6. Overhead, including backup costs and disaster recovery solutions
7. Staff support time, calculated at an assumed rate of \$75/hour
8. Technical training and/or conferences needed to keep support skills current

**CELL PHONE
CONNECTIVITY**

The City will enable cell phone synchronization to the City e-mail and calendar application for specific phone models, under the new email and calendar application due to go live at the start of FY12.

TELEPHONY

The City uses voice over IP telephony (VoIP); currently AVAYA version 3.25.



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STORAGE

All City work files and data must be stored on networked storage devices. Work files may not be stored on local hard drives. Temporary work files, if removed from the City's premises, must be encrypted onto portable storage devices.

**RELATED
POLICIES**

See also policy on "Protecting Confidential Information".